

CLAIMS

1. A connector for a flat multilayer element (1) that comprises a first rigid glazing pane (2) provided with one or more electrical functional elements (5; 6) and a second rigid glazing pane (4) joined flat to that side of the first rigid glazing pane that is provided with the functional elements, this second pane having at least one cutout (11; 11') for making an electrical connection to the functional elements, characterized in that a liner (12; 12D, 12S) is fastened in said cutout (11; 11') by a projection (13, 13'), the edge of which lies in the plane between the two rigid panes (2, 4) and/or catches, via the rear, on an undercut of the cutout, and in that the liner (12; 12D, 12S) serves as a counterbearing surface for fastening at least one connection piece (15) electrically connected to the functional elements (5; 6).

2. The connector as claimed in claim 1, characterized in that the cutout (11) is provided in the rigid pane having the functional elements or in the other rigid pane.

3. The connector as claimed in claim 1 or 2, characterized in that at least two regions of the functional elements of different polarity are brought into the region of the cutout (11; 11') and in that each of these regions is brought into electrical contact with a connection piece (15) fastened to the liner.

4. The connector as claimed in claim 1 or 2 or 3, characterized in that each connection piece comprises at least one spring contact (15) brought into electrical contact with the functional element.

5. The connector as claimed in one of the preceding claims, characterized in that a flat electrode (6; 20)

of the functional element, which may be electrically connected to each connection piece (15), is provided in the region of each of the latter.

5 6. The connector as claimed in one of the preceding claims, characterized in that the liner (12) is configured in the form of a bush and is inserted into the cutout (11), its projection (13) catching, via the rear, on the edge of the cutout in the plane of the
10 interlayer (3).

7. The connector as claimed in claim 1 or 6, characterized in that the projection (13) of the liner (12) is provided with at least one contact means (20),
15 which is designed for making an electrical connection between at least one connection piece (15) and a functional element (5), this functional element being associated with the rigid pane (4) in the cutout (11) of which the liner (12) is placed.

20 8. The connector as claimed in claim 7, characterized in that a contact means is produced as a connection bridge (20) which has, in the internal space of the liner (12) in the form of a bush, a contact surface for
25 a connection piece (15) and, on one face of the projection (13), a contact surface for connection to the functional element (5).

9. The connector as claimed in one of the preceding
30 claims, characterized in that the liner comprises a peg, in particular an undercut-engaging peg (12D) that is fastened in the cutout (11') by means of a screw (12S).

35 10. The connector as claimed in claim 9, characterized in that the screw is configured as a bush screw (12S) with an external thread, its internal space forming a housing for other components of the connector.

11. The connector as claimed in one of the preceding claims, characterized in that it is provided with means for fastening or suspending the flat element in a subjacent structure, in particular in the wall of a building.

12. The connector as claimed in one of the preceding claims, for a flat element provided as functional element with an electrically conductive coating called a heating layer (5) below.

13. The connector as claimed in claim 9, characterized by at least one temperature probe (16) for detecting the actual temperature of the heating layer (5).

14. The connector as claimed in claim 13, characterized by a switching element (17, 18) that can be controlled by the temperature probe (16), in order to interrupt or reduce the heating current should a predetermined temperature threshold be exceeded.

15. The connector as claimed in one of claims 12 to 14, characterized by a manually actuated adjustment device for introducing a temperature threshold for the heating element.

16. The connector as claimed in one of claims 12 to 15, characterized by a receiver for receiving control signals transmitted without any contact and by a switching device (17, 18) that can be controlled by the receiver, for remotely connecting and disconnecting the heating layer.

17. The connector as claimed in one of the preceding claims, characterized by at least one display element, in particular a light signal, for displaying the state of operation of the functional elements of the flat element.

18. The connector as claimed in one of the preceding claims, characterized by a connection box (8) in the form of a casing acting as a cover with respect to the external environment.

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19. A flat element (1) with electrical functional elements (5; 6) that are incorporated between two rigid plates (2; 4) and at least one connector as claimed in one of the preceding claims.

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20. The flat element as claimed in claim 19, one rigid plate of which is a pane (2) coated with an electrically conductive coating (5).

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21. The flat element as claimed in claim 19 or 20, characterized in that an optical mask is provided at least in the region of the cutout or of the connector on that side not facing the cutout.

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22. The flat element as claimed in one of claims 19 to 21, characterized in that at least one electrode intended to make electrical contact between the electrical functional element and the connector is placed on one of its rigid panes in the connector

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region.

23. The flat element as claimed in one of claims 19 to 22, characterized in that it includes at least one display element for displaying the operating state of its functional elements.

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